

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Agricultural Engineering

MONTHLY NEWS LETTER

Vol. 3

April 25, 1934

No. 10

S. H. McCrory attended the annual meeting of the Society of Automotive Engineers at Milwaukee, April 18, and delivered a paper on "Agricultural Engineering Research."

Lewis A. Jones is on a field trip inspecting the work on ground-water studies in Florida being conducted at the Everglades Experiment Station, Belle Glade, Fla., and conferring with B. S. Clayton relative to his report on this investigation.

Excavation work covering the straightening, deepening and improving of Decker's Creek channel on the Reedsville, W. Va. subsistence homestead project under the supervision of F. E. Staebner, is substantially completed. Because of the excessive amount of water being encountered, construction of tile drains has been temporarily discontinued but it is anticipated that work will be resumed about the middle of May.

On the Tygart Valley drainage project, in West Virginia, also being supervised by Mr. Staebner, the excavation work in the channel to divert hill streams that are causing a large part of the waterlogging of the bottom lands is approximately 40 percent completed. Installation of tile drains has been started and drains will be installed in a few places where early installation is desired. More active work will be started when the soil becomes drier.

D. L. Yarnell reports that the Civil Works investigation of excessive precipitations for short periods has been completed and a report prepared and submitted for publication. Records at 208 stations of the United States and its insular possessions were studied. The length of the records varied from 5 to 53 years. In all 28,077 different rain storms were investigated. The data will be extremely useful to engineers in designing terracing systems, farm drainage systems for removing surface water, culverts on small watersheds, and in the design of municipal storm sewers. This project was carried on under the Civil Works Administration.

The Civil Works studies of deficiencies in rainfall in 11 states of the eastern half of the United States, mostly along the Atlantic Seaboard, are 50 percent completed. Records at 170 different stations in these 11 states were compiled, the average length of the records being about 30 years. It is hoped that from this investigation information will be obtained that will be useful in determining the economic value of irrigation installations in the different parts of the humid area of the United States.

On April 12, C. E. Ramser left Guthrie for Washington, D. C., where he will present a paper entitled, "Dynamics of Erosion on Controlled Channels" at the annual meeting of the American Geophysical Union which meets April 26 and 27. Enroute to Washington he will visit the stations at Bethany, Mo. Clarinda, Iowa; LaCrosse, Wis.; Zanesville, Ohio; and Statesville, N. C.

H. S. Riesbol reports that all construction work at Guthrie on five Public Works jobs totalling \$5,500 was completed on March 31, 1934. The replacement of 13 silt boxes with new structures having concrete floors and 2-inch creosoted lumber walls was completed November 22, 1933. A project covering complete repair work to all farm buildings was completed on November 29, 1933 and a similar project on farm roadways was completed on December 29, 1933. The construction of a drop-inlet concrete-culvert-type soil-saving dam was finished January 31, 1934. The final project, completed March 31, 1934, consisted of the installation of four Geib divisors on strip crop plots of one acre each by the Bureau of Chemistry and Soils.

Crop yields on two fields at the Tyler station, one of which is terraced and the other unterraced, are beginning to show increases in crop yields for terraced land according to R. W. Baird. In 1931, in cotton, the yield from the unterraced field was 29 percent more than from the terraced field; in 1932, in corn, it was 8 percent less than from the terraced field and 1933, in cotton, it was 32 percent less. Thus in three years the production of an unprotected field has changed from 29 percent more than a terraced field to 32 percent less.

A. T. Holman reports that the first intense erosive rain for the year 1934 at the Bethany station occurred on April 3. The total rainfall was 3.64 inches with maximum rates of 5.4 inches per hour for a 5-minute period, 4.5 inches per hour for a ten-minute period and 3.2 inches per hour for 55-minute period. All of the terraces of conventional size on the erosion farm carried the water in a satisfactory manner without any overtopping or breaks. All the terraces which were purposely built small to determine the minimum size were overtopped but did not suffer serious damage.

The progress report on engineering investigations in soil erosion at the Hays station for the year 1933 has been completed by R. R. Drake.

On April 6 the artesian well at Stoneville, Miss. was brought in. This well was drilled to the depth of 1810 feet and flows approximately 85 gallons a minute. It will serve the bureau projects connected with the cotton ginning and fiber laboratories.

On April 5 Chas. A. Bennett attended the Texas cotton Ginners' Association convention at Dallas, Texas, where he informally addressed a group of approximately 5,000 ginners and farmers on recent developments in good ginning. This convention was one of the most successful ever held and Mr. Bennett familiarized many ginners with the work of the Cotton Ginning Investigations.

M. R. Lewis attended the Pacific Northwest Regional Planning Conference held in Portland, Ore., March 5-7. The conference was attended by representatives of several bureaus of the Department of Agriculture, of other departments of the Federal Government, the States of Oregon, Washington, Idaho, and Montana, and numerous municipalities and other organizations. It is expected that a report of the proceedings will be published.

In connection with the project "Control of Gravel in Open Channels," J. C. Marr had a conference with the Secretary of the State Land Board of Utah, during which tentative arrangements were made to conduct an investigation in cooperation with that Board and the Forest Service with a view to improving a 50,000 acre tract of grazing land in West Juab desert through the medium of the C.C.C. organization. Mr. Marr later made a trip to the site of the proposed work, in company with a representative of the Utah State Land Board, and after a week's examination of the tract, it was decided that the improvement contemplated was not justified.

Harry G. Nickle left Pomona, Calif., March 31, for his new headquarters at Austin, Texas, where he was to take up the work formerly carried on by Mr. Faris on "The Silt Load of Texas Streams" in cooperation with the Texas Board of Water Engineers. Before leaving Pomona, Mr. Nickle completed the preliminary draft of a progress report on stream flow measurements and use of water by transpiration and evaporation in Devil Canyon, on which project he has been engaged for the past several years.

Under the direction of R. L. Parshall, construction work was started on the silt laboratory near Rositas Dam on the Alamo River near El Centro, Cal. The first step was to construct the sluiceway beneath the timber grillage, followed by the placing of the timber grillage 32 feet wide and 105 feet long, which serves as a base or foundation for the main flume structure. There were also completed the two side channels which will be used to carry the effluent from the sand traps to the drainage channel leading back to the river. After completing the grillage, the 4 x 12-inch sills were set in place. The timber retaining wall was completed and the entrance section virtually finished. It was expected that on April 2 work would begin on the main headgate structure in the Alamo River diversion, where the 14-foot Wakefield sheet piling, built up of 2 x 6 inch pieces with surfaced cores, is to be driven by the Imperial Irrigation District.

A.A. Young completed a progress report covering operation of the evaporation station at Baldwin Park, Calif. for the period July, 1932, to December, 1933, which report includes summaries of all evaporation records obtained.

R. B. Gray attended the meeting of the Society of Automotive Engineers in Milwaukee, Wis. on April 18 and 19. This meeting, sponsored by the Tractor and Industrial Power Equipment Committee of the society was of particular interest to agricultural engineers, as papers dealing with tractor engine design and fuels were presented. Before returning to Washington Mr. Gray conferred with R. M. Merrill regarding his work at Toledo, Ohio.

The construction of an experimental burner for use in the control of pea weevil has been completed in the Toledo shop and shipped to Moscow, Idaho. O. K. Hedden will carry on the field work with this burner.

Experimental disc jointer and trash guides - plow equipment developed at Toledo - have been distributed to nine cooperating farmers in the vicinity of Toledo for trial during the spring plowing season. Rain and snow have prevented field work thus far.

On April 11 R. M. Merrill and O. K. Hedden drove from Toledo to the Troth Orchards near Orleans, Ind., where one of the experimental burners developed at Toledo is being used as a control measure for codling moth and apple scab.

The plow and debris coverage studies at Urbana, Ill. have been broadened this spring to include not only cornstalk coverage but also the problems of broom-corn and sweet clover debris coverage. Heavy growths of sweet clover and broom-corn present very difficult coverage problems in some sections of Illinois. Preliminary tests at Urbana conducted by Thayer Cleaver during the week of April 9 to 14 indicate that sweet clover debris can be covered thoroughly and without the aid of any field treatment previous to plowing. Disc jointers and loop trash guides which have been developed for cornstalk coverage were used in these tests.

On April 7 W. H. Redit and W. R. Humphries supervised potato planting operations at Onley, Va. They then proceeded to College Station, Texas for similar work with cotton in connection with cooperative fertilizer

placement studies.

Progress in the development of a hill-drop beet planter is reported by E. M. Mervine and S. W. McBirney. The design of the planter is such that the amount of seed deposited per hill is independent of the speed of travel; the seed are discharged from the seed cell very close to the furrow; and the seed are mechanically discharged from the seed cell. Preliminary tests indicate that a planter of this type misses few hills and does not scatter the seed.

J.W. Randolph and O. L. Carver were called to the Washington office April 1 to continue preparation of plans for the farm tillage machinery laboratory to be built at Auburn, Ala.

On March 12 E. C. Hansen reported at Auburn, Ala. to help on the cotton production project.

In March I. F. Reed made a trip to West Point, Starkville, and Stoneville, Miss. to measure the draft in the soil type at those stations of various pieces of equipment used to prepare cotton land. These draft tests are made as a part of the cotton production project and enable the interpretation of the yields produced in terms of the power required to produce them. An experimental cotton planter of the two-row tractor-drawn type has been completed at Auburn, Ala. It may be operated either as a variable or constant depth planter, with provision for packing the soil either before or after the seed are covered.

According to C. K. Shedd there is a good deal of interest in the basin lister-planter which was developed last year on the corn production machinery project at Ames, Iowa. Arrangements have been made with the Iowa Experiment Station to try this machine for growing corn on several plots on different soil types in Iowa. Each plot will consist of about 2 acres to be grown by use of the basin lister-planter in a field the rest of which will be tended by the farmer in the customary manner. One of these plots is to be located on the Soil Erosion Experiment Farm at Clarinda where run-off measurements can be made.

A mimeographed circular E-314 entitled "Plowing, irrigating, and pasturing to control the pink bollworm in the Big Bend district of Texas," prepared jointly by the Bureaus of Entomology and Agricultural Engineering and the Texas Agricultural Experiment Station, has been distributed among cotton growers of the Presidio Valley. Spanish translations of the circular were furnished Mexican Department of Agriculture officials for distribution in infested districts of Mexico. D.A. Isler assisted in the preparation of this circular.

An experimental drier of the tower type has recently been constructed at Jeanerette, La., by E. D. Gordon. An arrangement of fixed and movable baffles keeps the finely chopped material introduced at the top of the tower agitated in the path of hot furnace gases. When the dried material reaches the bottom it is discharged and conveyed to the storage structure.